A comparison of single and multiple row planting systems for irrigated grain sorghum production

G.D. Keefer

Qld. Department of Primary Industries, P.O. Box 81, Emerald, Qld. 4720

Experiments (1) at Emerald in Central Queensland (lat. 23.5?S) aimed to assess yield potential of furrow irrigated grain sorghum (cv Texas 610). Trials at higher latitudes (27.5?S) in South East Queensland have shown a marked yield response to plant density (2).

Methods

Over 2 seasons a range of populationswere grown in both single and multiple rows in a complete randomized block design (6-12 densities x 4 reps.) Populations were established by thinning. Rows were harvested separately.

Single - 80 cm beds furrow to furrow; Multiple - five 18 cm rows on 160 cm beds furrow to furrow.

Results and Discussion

Table 1. Yields for configurations common to 73-74, 76-77.

Row spacing cm		Population x 10^3 ha^{-1}		Yield t ha^{-1} (12%)	
Inter	Intra	A	B	A	B
Single Rows					
80	10	125		7.7	
80	5	250		8.2	
Multiple Rows					
18	20	150	280	8.0	10.3
18	10	300	560	8.0	9.7
		L.S.D. (0.05)		0.5	

A Calculated on planted area or furrow to furrow basis
B Calculated for three middle rows.

On a planted area basis (A) the multiple rows did not have a yield advantage. The yield response to population was small. Yields calculated for the 3 middle rows (B) demonstrate the advantages of narrow rows and isometric configuration (3) where furrow gaps can be avoided with alternative cultural techniques or irrigation methods.

1. Keefer, G.D. 1978 Grain Sorghum Workshop Q.D.P.I. March 1978, Warwick, Q1d.

2. Muchow, R.C., Coates, D.B., Wilson, G.L. and Foale, M.A. 1982. Aust. J. Agric. Res. 33: 773-84.

3. Heslehurst, M.R. 1983. Field Crops Res. 7: 213-222.